

Remarks

Claims 1, 3-11, 13 and 18-21 are pending in the application. Claims 4 and 9 are allowed. Claims 18-21 have been withdrawn from consideration by the Examiner. Claims 1, 3, 5-8, 10, 11 and 13 stand rejected.

Objection to the Specification

The amendment filed 8/2/2004 was objected to under 35 USC 132 as introducing new matter into the disclosure. Specifically, the Examiner states that the disclosure lacks support for the claim limitation "less than 220°C." While maintaining the position that the specification fully supports "less than 220°C" but to advance prosecution of the application, claim 1 has been amended to recite "between 140°C and 220°C." Withdrawal of the objection is therefore respectfully requested.

Claim rejections

Section 112

Claims 1, 3, 5-8 and 11 were rejected under 35 USC 112, 1st paragraph, on grounds that the specification lacks support for the limitation "less than 220°C." While maintaining the position that the specification fully supports "less than 220°C" but to advance prosecution of the application, claim 1 has been amended to recite "between 140°C and 220°C." Accordingly, withdrawal of the rejection of claims 1, 3, 5-8 and 11 under 35 USC 112, 1st paragraph is respectfully requested..

Section 102

Claims 1, 5, 6, 7, 8 and 11 were rejected under 35 USC 102(b) as being anticipated by Hidekuni et al. (JP 08-151,461) ("Hidekuni"). The Applicant respectfully traverses. Hidekuni cannot support the asserted rejection for at least the reason that Hidekuni does not disclose "heat press forming the raw material charged into the mold *into a ribbed separator* at a temperature which is between 140°C and 220°C" (emphasis added) as recited in claim 1. Instead, Hidekuni only discloses forming a "sheet," not a ribbed separator (see par. 10, for example: "[T]his invention is a sheet ..."). Moreover, Hidekuni contains no disclosure of the claimed heat press forming step at the claimed

temperature range. The Examiner refers to paragraphs 10 and 40, and the claims, as providing this disclosure. The Applicant respectfully disagrees. Paragraph 10 does not disclose any temperature range. Paragraph 40 only mentions a temperature in connection with pressing sheets into a board. This is not heat press forming of a separator using a mold and a raw material as recited in claim 1. As for the claims, these only refer to "compression molding" a "sheet." Further, Hidekuni only relates to the non-analogous art of production of a gas diffusion layer. Therefore, the technology of Hidekuni has no applicability to the field of the presently claimed separator, which requires sufficient gas-impermeability.

In view of the foregoing, claim 1 is allowable over Hidekuni. Moreover, since they incorporate the features of claim 1 by dependency on claim 1, claims 5, 6, 7, 8 and 11 are similarly allowable over Hidekuni. Withdrawal of the rejection of claims 1, 5, 6, 7, 8 and 11 as being anticipated by Hidekuni is therefore respectfully requested.

Section 103

Claims 1 and 11 were rejected under 35 USC 103(a) as being unpatentable over Kougorou (JP 590412781). The Applicant respectfully traverses. Like Hidekuni, Kougorou cannot support the asserted rejection for at least the reason that Kougorou does not teach or suggest "heat press forming the raw material charged into the mold *into a ribbed separator* at a temperature which is between 140°C and 220°C" (emphasis added) as recited in claim 1. Instead, Kougorou only discloses forming a "plate," which is then "sliced into 8.0 mm thicknesses" (abstract). By contrast, the present invention relates to a fuel cell that uses ribbed separators to form passages for the flow of gases such as hydrogen and oxygen. Accordingly, Kougorou cannot meet the recitations of claim 1, and therefore claim 1 is allowable over Kougorou. Claim 11 is likewise allowable over Kougorou for at least the reason that claim 11 includes the recitations of claim 1 by dependency thereon. Withdrawal of the rejection of claims 1 and 11 as anticipated by Kougorou is therefore respectfully requested.

The Examiner contends that Kougorou discloses the claimed temperature range of between 140°C and 220°C at p. 368, col. 2, lines 1-20. The undersigned is unable to comment on the cited portion, as it is in Japanese. However, it is noted that the

abstract makes no mention of the claimed temperature range for heat press molding a raw material, but only refers to "thermal pressure molding" of a "formation powder."

Claims 1, 3, 5, 7 and 8 were rejected under 35 USC 103(a) as being unpatentable over Kougorou in view of Sandelli et al. (US 4,643,956) ("Sandelli"). Along lines discussed above, Kougorou does not support the asserted rejection for at least the reason that Kougorou does not teach or suggest heat press forming a raw material into a ribbed separator at a temperature which is 140°C or greater and less than 220°C, as required by claim 1 and consequently also by claims 3, 5, 7 and 8 dependent thereon.

Sandelli does not remedy the deficiencies in Kougorou. Sandelli also fails to teach or suggest heat press forming a raw material into a ribbed separator at a temperature which is 140°C or greater and less than 220°C. Sandelli only discloses separator "plates," not ribbed separators.

Moreover, both Kougorou and Sandelli fail to teach or suggest "an amount of an epoxy group of said epoxy resin to an amount of a hydroxyl group of said phenolic resin in the raw material is adjusted to a value ranging from 0.8 to 1.2" as further required by claim 1. It is noted that the Examiner is unable to point to this subject matter in either Kougorou or Sandelli.

In view of the above, withdrawal of the rejection of claims 1, 3, 5, 7 and 8 as unpatentable over Kougorou and Sandelli is respectfully requested.

Claims 1, 3, 5-8 and 11 were further rejected under 35 USC 103(a) as being unpatentable over Sandelli in view of Hidekuni or Kougorou. The Applicant respectfully traverses. As discussed above, none of the cited references teaches or suggests heat press forming the raw material charged into the mold into a ribbed separator at a temperature which is between 140°C and 220°C. Instead, both Sandelli and Kougorou only disclose "plates," while Hidekuni only discloses "sheets." Moreover, both Sandelli and Kougorou, as noted earlier, are silent as to "an amount of an epoxy group of said epoxy resin to an amount of a hydroxyl group of said phenolic resin in the raw material is adjusted to a value ranging from 0.8 to 1.2." While Hidekuni does mention a 50/50

ratio of an epoxy resin to a solid phenol resin, it is noted that claim 1 calls for a ratio with respect to a *hydroxyl group* of a phenolic resin. The undersigned is unable to find any mention of such a hydroxyl group in Hidekuni.

Moreover, the person of ordinary skill would not find any suggestion in the art to combine Sandelli or Kougorou with Hidekuni. Both Sandelli and Kougorou relate to fuel cells, while Hidekuni relates to a "porous carbonaceous fabrication board" and makes no mention of fuel cells.

Accordingly, withdrawal of the rejection of claims 1, 3, 5-8 and 11 as being unpatentable over Sandelli in view of Hidekuni or Kougorou is respectfully requested.

Claims 1, 3, 5-8 and 11 were further rejected under 35 USC 103(a) as being unpatentable over Kougorou in view of Hidekuni. The Applicant respectfully traverses. The cited references teaches or suggests heat press forming the raw material charged into the mold into a ribbed separator at a temperature which is between 140°C and 220°C. Kougorou only discloses plates and Hidekuni only discloses sheets. Moreover, Hidekuni contains no disclosure of the claimed heat press forming step at the claimed temperature range. Kougorou and Hidekuni are both further silent regarding "an amount of an epoxy group of said epoxy resin to an amount of a hydroxyl group of said phenolic resin in the raw material is adjusted to a value ranging from 0.8 to 1.2" as recited in claim 1. Withdrawal of the rejection of claims 1, 3, 5-8 and 11 as being unpatentable over Kougorou in view of Hidekuni is therefore respectfully requested.

Claim 13 was rejected under 35 USC 103(a) as being unpatentable over Taylor (US 4,592,968) in view of Sandelli. The Applicant respectfully traverses. Taylor and Sandelli do not support the asserted rejection for at least the reason that they do not teach or suggest "completing manufacture of the separator without baking the separator" as recited in claim 13.

The Examiner recognizes the latter point, but contends that this feature would have been obvious. The Applicant respectfully disagrees. All of the art of record teaches baking the respective products described. In view of this, the claimed step of completing manufacture of the separator without baking the separator is anything but

obvious. Instead, it represents a distinct, novel and nonobvious departure from the prior art. The Applicant respectfully submits that the Examiner is engaging in impermissible hindsight reconstruction based on reference to the Applicant's own disclosure. Moreover, as the Examiner's comments appear to be based on personal observation rather than documentary evidence, the Applicant respectfully requests the furnishing of documentary evidence that the claimed feature is known in the art.

Claim 10 was rejected under 35 USC 103(a) as being unpatentable over Taylor or Sandelli in view of Hidekuni or Kougorou. The Applicant respectfully traverses. None of the cited references teaches or suggests "completing manufacture of the separator without baking the separator" as recited in claim 10. Instead, all teach away from this feature as noted earlier. Accordingly, the feature is clearly novel and nonobvious. Withdrawal of the rejection of claim 10 is therefore respectfully requested.

Conclusion

In light of the above discussion, Applicant respectfully submits that the present application is in all aspects in allowable condition, and earnestly solicits favorable reconsideration and early issuance of a Notice of Allowance.

The Examiner is invited to contact the undersigned at (202) 220-4323 to discuss any matter concerning this application. The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

Dated: Aug. 5, 2001

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